

Chapter 4

Section 4.2

Section 4.2.5

Quiz 116: True
Quiz 117: True
Quiz 118: False
Quiz 119: True
Quiz 120: False
Quiz 121: True
Quiz 122: True
Quiz 123: True

Section 4.3

Section 4.3.5

Quiz 124: True
Quiz 125: False
Quiz 126: True
Quiz 127: False
Quiz 128: False
Quiz 129: True
Quiz 130: False
Quiz 131: False
Quiz 132: True
Quiz 133: False

Section 4.3.6: Errata

- Exercise 4.19: Exercise 1.38 instead of Exercise 3.1.
- Exercise 4.20: Exercise 1.39 instead of Exercise 3.2.
- Exercise 4.21: Exercise 1.40 instead of Exercise 3.3.
- Exercise 4.22: Exercise 1.41 instead of Exercise 3.4.
- Exercise 4.23: Exercise 1.42 instead of Exercise 3.5.
- Exercise 4.24: Exercise 1.43 instead of Exercise 3.6.
- Exercise 4.25: Exercise 1.44 instead of Exercise 3.7.
- Exercise 4.26: Exercise 1.45 instead of Exercise 3.8.
- Exercise 4.27: Exercise 1.46 instead of Exercise 3.9.
- Exercise 4.28: Exercise 1.47 instead of Exercise 3.10.

Section 4.3.6

Exercise 4.12:

1.

$$\left\{ \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \right\}.$$

2.

$$\left\{ x_1 \cdot \begin{bmatrix} 0 \\ -3 \\ 2 \end{bmatrix} + x_2 \cdot \begin{bmatrix} 0 \\ -1 \\ 1 \end{bmatrix} + x_3 \cdot \begin{bmatrix} 3 \\ -2 \\ 3 \end{bmatrix} \mid x_1, x_2, x_3 \in \mathbb{R} \right\}.$$

3.

$$\{x_1 \cdot [0 \ 0 \ 3] + x_2 \cdot [-3 \ -1 \ -2] + x_3 \cdot [2 \ 1 \ 3] \mid x_1, x_2, x_3 \in \mathbb{R}\}.$$

Exercise 4.14:

1.

$$\{x_1 [0 \ 1 \ 0 \ 0] \mid x_1 \in \mathbb{R}\}.$$

2.

$$\left\{ x_1 \cdot \begin{bmatrix} -2 \\ 3 \\ 2 \end{bmatrix} + x_2 \cdot \begin{bmatrix} 0 \\ 1 \\ -2 \end{bmatrix} + x_3 \cdot \begin{bmatrix} 0 \\ 1 \\ -1 \end{bmatrix} \mid x_1, x_2, x_3 \in \mathbb{R} \right\}.$$

3.

$$\{x_1 \cdot [-2 \ 0 \ 0 \ 0] + x_2 \cdot [3 \ 0 \ 1 \ 1] + x_3 \cdot [2 \ 0 \ -2 \ -1] \mid x_1, x_2, x_3 \in \mathbb{R}\}.$$

Exercise 4.20: The null space is

$$\left\{ \begin{bmatrix} 0 \\ 0 \end{bmatrix} \right\}.$$

The solution is $x_1 = 0, x_2 = -1/2$.

Exercise 4.22: The null space is

$$\left\{ \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \right\}.$$

The solution is $x_1 = -2.697479, x_2 = 7.815126, x_3 = -4.436975$.

Section 4.4

Section 4.4.5

- Quiz 134: False
- Quiz 135: True
- Quiz 136: True
- Quiz 137: False
- Quiz 138: False
- Quiz 139: True
- Quiz 140: True
- Quiz 141: True
- Quiz 142: False
- Quiz 143: False
- Quiz 144: False
- Quiz 145: False

Section 4.4.6

Exercise 4.30:

1.

$$\left\{ \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \right\}.$$

2.

$$\left\{ \begin{bmatrix} 1 \\ 0 \\ -1 \end{bmatrix}, \begin{bmatrix} 0 \\ -2 \\ -1 \end{bmatrix}, \begin{bmatrix} 3 \\ 2 \\ -2 \end{bmatrix} \right\}.$$

3.

$$\{ [1 \ 0 \ 3], [0 \ -2 \ 2], [-1 \ -1 \ -2] \}.$$

4. 3

5. 0

Exercise 4.32:

1.

$$\left\{ \begin{bmatrix} 0.1612810 \\ 0.6451240 \\ 0.3763223 \\ 0.6451240 \end{bmatrix} \right\}.$$

2.

$$\left\{ \begin{bmatrix} -3 \\ -1 \\ -3 \end{bmatrix}, \begin{bmatrix} -0 \\ 1 \\ -3 \end{bmatrix}, \begin{bmatrix} 1 \\ -1 \\ 1 \end{bmatrix} \right\}.$$

3.

$$\{[-3 \ 0 \ 3 \ -1], [-1 \ 1 \ -3 \ 1], [-3 \ -3 \ 3 \ 2]\}.$$

4. 3

5. 1

Exercise 4.36:

1.

$$\left\{ \begin{bmatrix} 0 \\ 0 \end{bmatrix} \right\}.$$

2.

$$\left\{ \begin{bmatrix} 1 \\ -1 \end{bmatrix}, \begin{bmatrix} 3 \\ -1 \end{bmatrix} \right\}.$$

3.

$$\{[1 \ -6], [-1 \ 2]\}.$$

4. 2

5. 0

Exercise 4.38:

1.

$$\left\{ \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \right\}.$$

2.

$$\left\{ \begin{bmatrix} 5 \\ 7 \\ -1 \end{bmatrix}, \begin{bmatrix} 5 \\ -2 \\ 3 \end{bmatrix}, \begin{bmatrix} -1 \\ -4 \\ 4 \end{bmatrix} \right\}.$$

3.

$$\{[-5 \ 5 \ -1], [7 \ 2 \ 4], [1 \ 3 \ 4]\}.$$

4. 3

5. 0